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of four classes, — slaves, peasants, sub-chiefs, and chiefs. The peasants, who are the main body of the population, form the army. The sub-chiefs, who are elected from among the peasants, govern the provinces, and have the command of a certain number of soldiers. They are responsible to the Wakungu, the chiefs. These form a council, which in reality decides the affairs of the state. Every one of the chiefs must live three months out of every year at the residence of the king. Thus the state is thoroughly centralized, and the government has as much influence on the borders of the state as in the central provinces. If war is decided upon, the war-drums are beaten, and the whole army assembles before the royal palace. In time of peace the Waganda wear a toga made of bark; but in time of war they lay it aside, paint their faces white and red, and go into the battle naked, with the exception of a piece of cloth wound around the loins. Their weapons are beautiful spears with points more than a foot long, and oval shields of light wood covered with twigs and having a boss in the centre. Besides the spears, they use powerful bows, and poisoned arrows with formidable barbs. It is the privilege of the king to bear a copper lance. Armed with two of these lances, and wearing his shield, he stands before the entrance of his palace, surrounded by the chiefs, and gives his orders to the army. The palace is built of reeds and straw, and is about a hundred feet long, the roof resting on heavy timbers. The accompanying sketch shows the hall in which Mtesa gave his audiences, and where Stanley met him. A large fleet of canoes which the Waganda have on the Victoria Nyanza makes their army still more powerful. Some of their canoes carry as many as forty men, and it is said that from sixteen to twenty thousand men can be transported by the whole fleet.

This powerful nation is strong enough to shut off the region north of the Victoria Nyanza, and to prevent the passage of caravans through its territory. The distrust of the new king Mwanga hinders the work of European explorers and missionaries just as much as the friendliness of Mtesa had helped them. Though the kingdom has been for two generations in contact with Arabs, and later on with whites, it has retained its independence and power.

#### PHYSICAL GEOGRAPHY OF CENTRAL AFRICA.

THE map of Central Africa which accompanies the present number shows the river system of the Kongo, the head waters of the Nile, and East Africa. This part of the continent forms one of

the large plateaus which give Africa its peculiar character. An immense highland occupies the continent south of a line drawn from Abyssinia to the Niger. Its rim is formed by mountain-ranges, which fall off in terraces toward the sea. A depression indicated by the valleys of the Kunene and Zambezi separates the plateau of South Africa from that of Central Africa. The eastern side of the latter consists of a number of high mountain-ranges and plateaus. The highlands of the Bangweolo and Nyassa lakes, which are from 4,000 to 5,000 feet high, extend to the caravan route leading through Unyamwesi. Its descent towards the Zambezi is very steep, while in the north-west it gradually falls off towards the plateau of the Kongo basin. Lake Bangweolo, which occupies the south-western portion of the highland, is 3,700 feet high. North of Unyamwesi the land rises to the mountainous district of the Victoria Nyanza and Muta Nsige, which attains a height of 11,000 feet in the mountains of Karagwe and Ruanda, west of the Victoria Nyanza. East of this region enormous volcanoes indicate the edge of the plateau, the Kilima Njaro rising to 19,000 feet, and the Kenia to 16,000 feet, in height. North-east of the Victoria Nyanza we find the highlands of Abyssinia.

This mountainous district contains the sources of all the rivers of Central Africa except the southern tributaries of the Kongo, which come from the swamps on the watershed between the Kongo and Zambezi. The latter river drains the southern slope of the plateau. Numerous small rivers, among which the Rovuma and Rufiji are the most important, descend from its eastern slope: the lofty mountains of Karagwe feed the sources of the Nile, and the Kongo has its origin on the western side of these highlands.

The large lakes which collect the head waters of all these rivers are characteristic of this part of Africa. Steep mountains surround the stormy Lake Nyassa, which occupies a long and deep valley on the southern side of the plateau. The large basin of the Victoria Nyanza is in part surrounded by low hills, and filled with many islands, but on its western side the steep mountains of Karagwe reach to its shore. This lake and the Mvutan Nsige are the collecting basins of the White Nile. From the Victoria Nyanza, which is 4,100 feet high, the Nile descends 1,350 feet, until it reaches the Mvutan Nsige, 2,750 feet above the level of the sea.

The Tanganyika is situated on the western slope of the highlands, and sends its water by the Lukuga into the Kongo. When the rivers belonging to the Kongo system have descended the terraces forming the eastern rim of the highland,

they flow slowly towards the west coast, unobstructed by rapids or cataracts until they reach the western rim of the plateau. Here the mighty Kongo and the smaller river rush down its steep side in roaring rapids and cataracts.

The character of this district depends to a great extent upon the meteorological phenomena, particularly on the amount of rainfall. North and south of the district included between latitudes  $20^{\circ}$  north and  $20^{\circ}$  south, the aridity of the climate, which is due to the trade-winds, produces the vast deserts and steppes of the Sahara and Kalahari. In the parts adjoining the equator we find rainy and dry seasons interchanging. On the west coast the climate is influenced by the prevailing south-westerly winds, which tend to lower the temperature, particularly as they blow from the cold Benguela current. The isothermal lines on the west coast approach the equator much nearer than do those on the east coast. There are two seasons, — the cool and foggy one, which has no thunder-storms; and the hot, rainy season. The dry season begins towards the end of May, and lasts, in the southern parts until August, in Loango until the middle of October. Farther north, at Gabun, the dry season lasts from June until the middle of September, but slight showers of rain occur in all months. During this season a whitish haze obscures the sun: early in the morning thick fogs cover the land, and the dew is very plentiful. The fog produces a drizzling rain, which is of great importance for the development of the vegetation. While the west coast south of the equator has little rain, the east coast, which is under the influence of the south-easterly trade-winds, is very damp. From May until October south-westerly winds prevail on this coast, while later on the trade-winds are blowing. The latter come from the warm Mozambique current, and are saturated with vapor, which is precipitated on the mountain-ranges of the east coast. Throughout the interior, summer rains prevail, but near the tropic of Capricorn the amount of rain is decreasing. Owing to the humidity of the climate, the rivers are very numerous, and carry great volumes of water. The watersheds of the whole district are very indistinct; the head waters of the Welle and Nile, and those of the Sankuru-Kasai and the Zambezi systems, being in close proximity, and not separated by elevations. The same is probably the case between the Welle and Shari, and until quite recently we did not know whether the Welle belonged to the Kongo or to the Tsade system. The swamps and lakes at the head of the Kasai probably form a bifurcation between that river and the Zambezi: according to Livingstone,

the Dilolo Lake has a northern and a southern outlet.

The basin of Lake Bangweolo, and its outlet, the Luapula, may be considered the source of the Kongo, but the Lualaba is not inferior to it in size: and after both rivers have joined, above Nyangwe, the Kongo carries a great volume of water. Below Stanley Falls the Lubilash and Ubinji join it, and the river takes a westerly direction. It is a characteristic feature of the Kongo basin, west of longitude  $25^{\circ}$  east, that all rivers take a westerly direction. In the north we have the Welle-Makua, with its mighty tributaries the Werre and Mbomu. This river, which very probably empties into the Obangi, is one of the most important tributaries of the Kongo; but the Sankuru system, which drains the southern portion of the basin from longitude  $15^{\circ}$  to  $25^{\circ}$  east, is not inferior to it. During the early time of African travels, news reached us of the enormous Lake Sankuru, which at last proved to be the river system, which is now tolerably well known. The Sankuru has its source near the foot of the western slope of the East African highland, which is indicated by the numerous lakes of the upper Lualaba. As far as latitude  $5^{\circ}$  south it runs in a northerly direction, and then turns to the west. We are not sufficiently acquainted with the relief and geology of Central Africa to understand why the numerous rivers running south and north very close to each other suddenly take a westerly turn in this latitude. In the most central parts of the Kongo basin, which is situated between the Sankuru and Mbomu, this is the predominating direction. Among the tributaries of the Sankuru, the Lubilash, Kasai-Lulua, and Kuango, with its tributaries, carry the greatest volume of water. It seems that the north and south direction of the western part of the Kongo is caused by its approach to the western watershed. It is doubtful whether the Kadei and Nana, which are known by Flegel's inquiries in Adamaua, belong to the Kongo system. Here is the part of Africa which is least known. The coast tribes, for fear of losing the trade between the interior and the coast, prevent explorers entering the continent, and no traveller has reached that district either from the Tsade basin or from the Welle-Nile watershed. Besides this, the country east and west of the Kongo above Stanley Falls is unknown, and so is the territory north-east of the Victoria Nyanza.

The central depression between the plateaus of Central and North Africa is indicated by the Shari and Bar-el-Arab. The upper part of the former is still unknown, the south and north tributaries of the latter having been the field of Schweinfurth's, Junker's, Lupton's, and Emin's

explorations. On the west side we find high mountains in Adamaua, — which probably form the north-western corner of Central Africa, — and the volcanic Kamerun Mountains, which lie on one line with those of S. Thomé and Anno Bon.

#### THE PEOPLE OF CENTRAL AFRICA.

THE northern boundary of the Bantu language, to which almost all tribes and nations of Central Africa belong, is a line running from Kamerun to the outlet of the Mvutan Nsige, including the Victoria Nyanza, thence turning south to the Kilima Njaro, and reaching the coast in about latitude 1° south. As compared with the large area occupied by dialects of this linguistic stock, the extent of other languages is very limited. Those of the negroes of the upper Nile, the Niam-Niam and Mangbatu, the Galla, and also those of the Benue and Central Sudan, do not belong to this stock; and it is impossible, with our present knowledge, to classify them properly.

The anthropologist finds even greater difficulty in classifying the races of Africa than the linguist, for the different types of African people are connected by numerous links. There are only a few places where a characteristic difference in appearance may be observed. As one instance we mention the remarkable light tribes of the Welle-Nile watershed, — the Niam-Niam and Mangbatu, and the scattered dwarfs of Central Africa. In comparing the ethnological peculiarities of the Niam-Niam with those of their neighbors, it strikes us that the Fan or Mpongwe, who invaded the Gabun region from the east, are very similar to them, and that their characteristic throwing-knife is found in southern Adamaua, and in slightly differing forms over the whole area north of the Kongo.

The dwarfish Mucassequere of the Kuando, south of Lunda, the Watwa of the southern Kongo basin, the Akka of the Welle, and several other West African tribes, are, in their anthropological appearance, very similar to the Bushmen of South Africa. Their height is about four and a half feet, they are of a yellowish complexion, and have woolly hair. The scattered occurrence of these tribes all over Central Africa makes it very probable that they inhabited the whole country before the invasion of the Bantu. Their languages are little known, but all of them seem to have adopted to a great extent that of the people with whom they live. They do not till the soil, but live almost exclusively as hunters.

The majority of the negroes live on the products of agriculture and stock-raising. There are

no tribes without agriculture in Central Africa, except the dwarfish Watwa and Akka. Though their implements are very simple, they clear the dense woods, and fence in their fields. Hirse is the most important grain they grow. It is cultivated in all parts of Africa. Sorghum, manioc, and batatas are grown in the lower countries, maize and pulse on the highlands. In Uganda, bananas are the principal food. Stock-raising is the favorite occupation of many East African tribes. The herdsmen are frequently warlike nations who have subdued agricultural tribes. The Galla, Wahuma, and Watuta have founded empires of this kind. On the upper Nile the natives are engaged in both stock-raising and agriculture. Cattle, sheep, goats, dogs, and poultry are raised by these people.

The most remarkable industry of Africa is that of iron-working, which is known in all parts, the Bushmen alone being unacquainted with it when they became known to the Europeans. The Africans know how to obtain the iron from the ores, and manufacture beautiful implements of it. Besides iron, they manufacture copper implements and make copper and iron wire. The negroes do not know how to tan skins, but soften them by scraping and beating; neither do they practise the art of joining wood; while carving, plaiting, and weaving are highly developed.

The civilization of the negroes is not at all a low one. Their mode of life, their industry, and their political institutions are ample proof of this. Large empires founded by men excelling in intelligence and character, and extensive migrations of energetic nations, are characteristic of its history. The observations of all explorers show that arts and industry are far more developed in the interior than near the coast. Here, as everywhere else, the contact with nations of a higher civilization, the whites and Arabs, tends to destroy the native culture. Here the ruthless Arabian slave-hunters devastate regions which were flourishing before their arrival, and the final destiny of the Africans will depend to a great extent on the end of the final struggle between the whites and the Arabs.

#### THE VEGETATION OF CENTRAL AFRICA.

THE peculiar character of the landscape of Central Africa is due to the great extent of its highlands and the frequently alternating woods and savannas. In the rainy districts of the west coast north of the Kongo, dense forests prevail, but farther south the vegetation is not so luxuriant. Here we find the baobab and the plants characteristic of the savannas of the central plateaus. But even in